From: Valentina Cabrera Stagno

To: Karen Schwinn

Re: Attached are my notes from one of the group discussions at the March 27 Estuarine Habitat Workshop.

Date: March 29, 2012

**Technical Team Members & Reporters**:

Larry Brown, USGS Team Leader

Steve Culberson, FWS – Team Reporter (first question)

Kathy Hieb, DFG

Stephen Monismith, Stanford University

Erwin van Nieuwenhuyse, USBR

Matt Nobriga, FWS

**First Session: Question #4**

Larry –Turbidity and temp forecasting would get you to primary production.

Stephen - Need meteorological data for temperature, fog line determines temp and can go far inland in the delta.

Steve – need to know what is going on at the land water interface, small scale landscape features result in heat exchange. People don't sample any place they can't put in a boat.

Stephen – mentioned cache slough/liberty island data collection efforts

Kathy – do we know enough about sediment supply to predict future scenarios with Suisun restoration? plans are underway for undoing some of the duck club diking but some of the properties that are for sale are not the most critical parcels

General (ie. Can't recall who said it) – none of the models available today can take into account vegetation.

Stephen – why have rolls Royce hydro modeling if bio data is only a pinto? Dick Dougdale (sp?) wants to develop a model that would calculate primary production to see if ammonium is the factor. This would either support or undercut ammonia hypothesis. Grazing measurement was linearly dependent on flow in a study that a student did in ____ marsh.

Kathy – China camp is a sink

Larry – someone measured growth rates in Oregon. We can't model fish populations well.

Matt – if you had a temperature change and bioenergetics model then you could

Stephen – you need to know predation. X2 used to be connected to delta smelt, now not clear. Little fish don't like clear water because they get eaten

Matt – if you overlay the different parameters (temp, salinity, etc) delta smelt habitat has shrunk

Erwin – phytoplankton model hasn't changed since Detoro (sp?) model. Growth rates and grazing are rudimentary. Have pretty good chlorophyll model. He is interested in concentration of phytoplankton and export to Suisun bay, suggests modeling the whole thing.

Larry – says Bruce says he bloom in Suisun might have occurred elsewhere and been exported to that spot.

Stephen – Dick Denton (sp?) has simple model that beats 3d models and is easier to compute

Steve – if slowing velocities then create more cyanobacteria

Erwin – in the 80's they slowed water in delta in spring as an experiment and they made a beautiful diatom bloom. Sac ship channel has more delta smelt and lots of chlorophyll and zooplankton. Would like to test a model by pushing it out to the bay. If you model for physics-> phytoplankton-> zooplankton-> delta smelt – it's a pretty straight shot.

Nutrients->algae->zooplankton->smelt.

Matt – delta smelt "agricultural model"

Kathy – only interested in 1-6ppt salinity. Longfin is the only fish in the area similar to smelt but also listed (Ca only). She wants to know what is a source or a sink.

Stephen- just because you can calculate it doesn't make it right.

Kathy – managers are thinking shallow water restoration being good food for smelt but research in other places says maybe it's not

Stephen – Elkhorn slough channels are goof for soaking up nitrogen from Salinas

Observer (black jacket bald head) – liberty and browns head very little nitrogen uptake

Stephen – we need a model to predict lawsuits

General – simple versus complex model tension. The NRC report is being released on Thursday and it seems that other estuaries have a 3d primary production model and we don't.

Matt – the upper level bio people aren't into modeling in the bay

Stephen – because they are all students of Peter Moyle, we need to attract people from the Great Lakes. Also most of the $ for modeling is in a group in DWR that doesn't talk to anyone else.

**Lunch Session – Question #1**

General – decrease in variability in fall x2, is that important? Has spring variability gone down?

Larry – with increased productivity would it go to clams or to our fish?

Erwin – faster velocity = more grazing. Suggests adding productivity to the system in the spring. Would we grow more corbicula in lower areas of the of the bay if we increased production upstream. Diving ducks eat clams…but not good predators for corbicula.

Stephen – when you model full flow at reservoirs (whatever max possible per dams gates) it only gets you to chipps island

Matt – LSZ is changing, less turbid , less food

Kathy – shallow water part of Suisun and grizzly are losing sediment / getting deeper

Stephen – grazing or ammonia causing drop in primary productivity? Answer from group is BOTH

Agreement that higher X2= more entrainment

1st NRC report looked at BOs, 2nd NRC report looked at BDCP, now 3rd NRC report will look at the rest.

Stephen – is the risk of levee failure enough to merit the tunnel?

**Session #3 – Question #2**

General – requires incrementally more water further downstream. People manage the flows to avoid trigger to X2 reading to meet the standard next month which means there is now less variability.

Stephen – recommends direct updates of bottom salinity in real time

Matt – EPA needs to take a look at every species it is intending to protect and start there. Tabulate what the needs are for those fish. Marine fish need landward transport.

Stephen – Dungeness recruitement

It's good that Yolo is dry in the summer because that means no invasive fishes

Stephen – resource folks needs to decide what would be the best use of the finite number of acre feet of water allocated for ecological purposes. 800k million acre feet from CVPIA and 200k maf (_____ group was supposed to have)

Matt – his answer would be to generate as many Chipp island compliance days as possible

Stephen – think about how you would spend your water for the ecoystem